

Work Order ID 102547

May-30-13 1:02:19 PM

\*102547\*

Page 1

Item ID: D205-634-041

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Replacement Skidtube

Start Date: 5/30/13 Start Qty: 2.00 \*2\*

Cust Item ID:

Required Date: 6/05/13 Req'd Qty: 2.00 \*2\*

Customer:

Reference: RA111552 - RETURN FOR REWORK

Approvals: Process Plan: W Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
----------	--------------

D2580-041	(DEO) Rev.E
-----------	-------------

100	DOCUMENT CONTROL	0.00
-----	------------------	------

\*100\*

DC

Memo

Document Control

WHITE LABELS ONL - NO B/N

105	QC1 - Inspect dimensions to dimension sheet	0.00
-----	---	------

\*105\*

QC

Memo

Quality Control

RECORD SERIAL NUMBER

120		0.00
-----	--	------

\*120\*

Skidtubes

Memo

Skidtubes

STEP 2 ON REPAIR SCHEME 1010

DAS

16  
2-88

no s/n on tubes

13/06/03

no plugs shipped w/ tubes

+ BEB/06/03

SAD 13/06/03

# Work Order ID 102547

\*102547\*

Page 2

May-30-13 1:02:19 PM

Item ID: D205-634-041

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID:

Stop \*NS2\*

Item Name: Replacement Skidtube

Start Date: 5/30/13 Start Qty: 2.00 \*2\*

Cust Item ID:

Required Date: 6/05/13 Req'd Qty: 2.00 \*2\*

Customer:

Reference: RA111552

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

130 QC5- Inspect part completeness to step on W/O

0.00

\*130\*

QC

Memo

0.00

Quality Control

STEP 3 ON RS1010

*DP 13-6-3*

140

0.00

\*140\*

Skidtubes

Memo

0.00

Skidtubes

STEP 4 ON RS1010

*BE 13/06/03*

*SAP 13-06-03*

160

0.00

\*160\*

QC

Memo

0.00

Quality Control

STEP 5 ON RS1010

*DAS 16 13/06/03*

# Work Order ID 102547

\*102547\*

Page 3

May-30-13 1:02:19 PM

Item ID: D205-634-041 Accept \*N900040100\* Setup Start \*NS1\*  
 Revision ID: Stop \*NS2\*  
 Item Name: Replacement Skidtube  
 Start Date: 5/30/13 Start Qty: 2.00 \*2\* Cust Item ID:  
 Required Date: 6/05/13 Req'd Qty: 2.00 \*2\* Customer:  
 Reference: RA111552

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start \*NR1\*  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170	Pressure Wash per QSI005 4.3	0.00							
*170*									
HandFinish	Memo	0.00							
Hand Finishing	STEP 4a ON RS1010								
210	QC5- Inspect part completeness to step on W/O	0.00							
*210*									
QC	Memo	0.00							
Quality Control	STEP 5 ON RS1010								
220	Packaging	0.00							
*220*									
Packaging	Memo	0.00							
Packaging	REPACKAGE - NO B/N REQUIRED SEE QC FOR PAPERWORK- NO ARC								

1 φ 13-6-5.

① 13-06-05

DAS  
09  
2-88

13/4/11 SC

# Work Order ID 102547

**\*102547\***

Page 4

May-30-13 1:02:19 PM

Item ID: D205-634-041

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Replacement Skidtube

Start Date: 5/30/13 Start Qty: 2.00 **\*2\***

Cust Item ID:

Required Date: 6/05/13 Req'd Qty: 2.00 **\*2\***

Customer:

Reference: RA111552

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230	QC21- Final Inspection - Work Order Release	0.00							
<b>*230*</b>									
QC	Memo	0.00							
Quality Control	SEE QC FOR PAPERWORK- NO ARC								

13/6/11 *[Signature]*  
NIP  
13-6-10

# Picklist Print

May-30-13 1:02:19 PM

Page 1

Work Order ID: 102547

Parent Item: D205-634-041

Start Date: 5/30/13

Required Date: 6/05/13

Parent Item Name: Replacement Skidtube

Start Qty: 2.00

Required Qty: 2.00

Comments: IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30  
 KJ IPP Rev P 10.02.19 per PAR09-043 EC  
 verified by:DD  
 IPP Rev. O 06.02.28 Added paperwork EC  
 IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM IPP Rev:Q 10.12.01 as per chg003  
 DD verf:EC IPP REV:R 12.01.23 AS PER ECN11-684 VERF:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D205-634-041 Replacement Skidtube		Manufactured	No				Each	4.0000		2			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				FG		2							
				87804		1							
				98808		1							
				FG073		2							
				98210		1							
				99433		1							
D4202-1 Spacer		Manufactured	No				Each	203.0000		8			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				LG		199							
				96906		4							
				98699		195							
				LG002		4							
				97447		4							



<b>DART AEROSPACE LTD</b>		<b>Work Order:</b>	
<b>Description:</b> Repair Scheme for Canadian D205-634-041 Skidtube (Replacing crack crossbolt spacers)			
<b>Drawing:</b> D2580-041		<b>Repair Scheme:</b>	<b>RS1010</b>
<b>Part No:</b> D205-634-041		<b>Page:</b>	<b>2 of 1</b>
<b>Batch No:</b>		<b>Qty:</b>	


Rev	Date	Change Description	Prepared	Checked	Approved
A	13.04.04	New Issue	DD		

U:\Admin\Forms\RepairschemblA.doc

Rev. A

# **RA 111552 D205-634-041**

## **for reworking**

102547

Received @ Dart May 27<sup>th</sup>, 2013  
Inspected @ Dart May 27<sup>th</sup>, 2013

CUSTOMER: CANADIAN HELICOPTERS  
CUSTOMER CONTACT: CHRIS WIERINGA  
SHIPPED FROM: LES CEDRES PQ, CANADA

### **Instructions for RA 111552 D205-634-041 qty x2**

- Tubes are here for re working same re work scheme that David Duvall had original created for the previous re work
- Remove all cross bolt spacers in the fwd. & aft saddles and the GHW areas
- Remove the aft cap
- Swage in new D4202-1 per DEO D2580-E-1
- "clean" up only area around the saddles and GHW and realodine in those locations
- Reinstall aft cap with new sikaflex and with new AN3-5A bolts and NAS1149D0332J washers qty x 2 each of each skid tube

**Time Estimate** = 5 hours per tube

**Departments Required:** Landing Gear

**Pictures Attached** = NO

**QTY INSPECTED** = x2 D205-634-041 B????

**THIS INSTRUCTION SHEET MUST  
BE ATTACHED TO THE  
RESTOCKING WORK ORDER AT  
ALL TIMES!!!!**



LIST OF MATERIALS				
ITEM	QTY -041	QTY -045	QTY -047	PART NUMBER
1	X			D2580-041
2		X		D2580-045
3			X	D2580-047
4	1	1	1	D2500-1-190
5			16	D2570
6	1	1	1	D2576-3
7	20	24	25	D2579
8	16	16	8	C2594-1
9	16	16	8	D2594-3
10	1	1	1	D2596
11	1	1	1	D2855
12	1	1		D3564-5
13	1	1		D3564-9
14	1	1		D3564-11
15	1	1		D3564-13
16	2	2		D3566-1
17	1	1		D3566-5
18	1	1		D3566-13
19			1	D4406-041
20			1	D4406-043
21	50	50		ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130
22	50	50		AN3C4A
23	2	2	2	AN3-5A
24			8	AN4-45A
25	50	50		NAS1149C0332R
26	2	2	2	NAS1149D0332J
27			8	MS21042-4
				DESCRIPTION
				SKIDTUBE ASSEMBLY
				SKIDTUBE ASSEMBLY
				SKIDTUBE ASSEMBLY
				EXTRUSION
				BUSHING
				STEP
				SPACER
				PLUG
				O-RING
				205 WEB
				AFT CAP
				WEARSHOE
				WEARSHOE
				WEARSHOE
				WEARSHOE
				GASKET
				GASKET
				GASKET
				WEARPLATE ASSEMBLY
				WEARPLATE ASSEMBLY
				INSERT
				BOLT
				BOLT
				BOLT
				WASHER (AN960C10L)
				WASHER (AN960JD10L)
				NUT (OR MS21042L4)

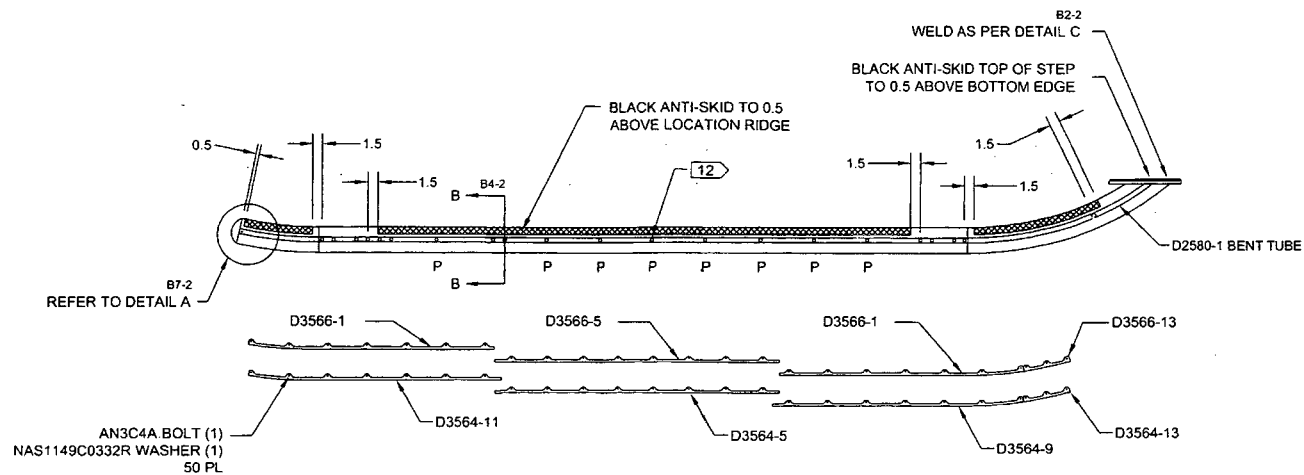
# GENERAL NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB  
POWDER COAT ASSEMBLY (-041/-047) GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3  
POWDER COAT ASSEMBLY (-045) GREEN SANDEX (REF 4.3.5.8) PER DART QSI 005 4.3  
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4.
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: D2580-041 = 34.5 lbs  
D2580-045 = 34.5 lbs  
D2580-047 = 37.7 lbs
- 8) WELDING PER DART QSI 004.
- 9) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 10) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 11) USE DART DRILL TEMPLATE DT8217 & DT8937 ONLY FOR D2580-041/-045 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTIONS B-B AND F-F (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND NAS1149C0332R WASHERS WITH SIKAFLEX-241-291.
- 12) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES FOR D2580-041/-045 AND 8 PLACES FOR D2580-047)
- 13) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

DEO ATTACHED

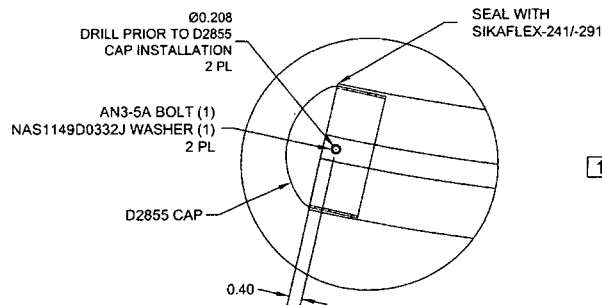
RELEASED  
2011-08-29

E	ADD D2580-047 (ZN C4-7) AND D2580-7 (ZN B3-8); INCLUDED DEO D2580-D-1; REFORMATTED DRAWING TO CURRENT STANDARDS; DT8217 & DT8937 WAS TD2577-205 (ZN C4-1)	RF	11.06.21
D	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/ 9183	PH	07.04.05
C	REDRAWN, INCLUDED DEO 9094/ 9097	CP	98.08.26
B	AS MANUFACTURED	DS	98.12.02
A	NEW ISSUE	DS	96.09.16
REV.	DESCRIPTION	BY	DATE
DESIGN	#	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	10	DRAWING NO.	REV. E
MFG. APPR.	10	D2580	SHEET 1 OF 8
APPROVED	10	TITLE	SCALE
DE APPR.	10	205 SKIDTUBE ASSEMBLY	NTS
DATE	11.06.21	COPYRIGHT © 1996 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	

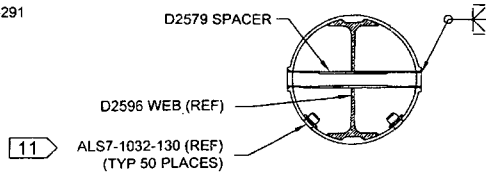


**D2580-041 ASSEMBLY DETAIL**

**DETAIL A** C7-2  
SCALE 5X

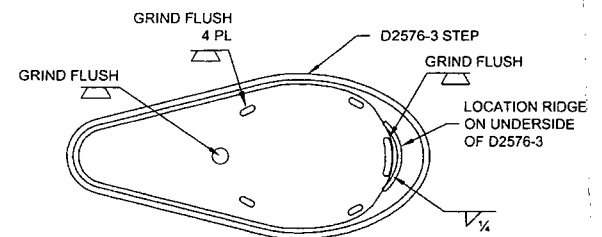


**SECTION B-B** D5-2  
SCALE 5X



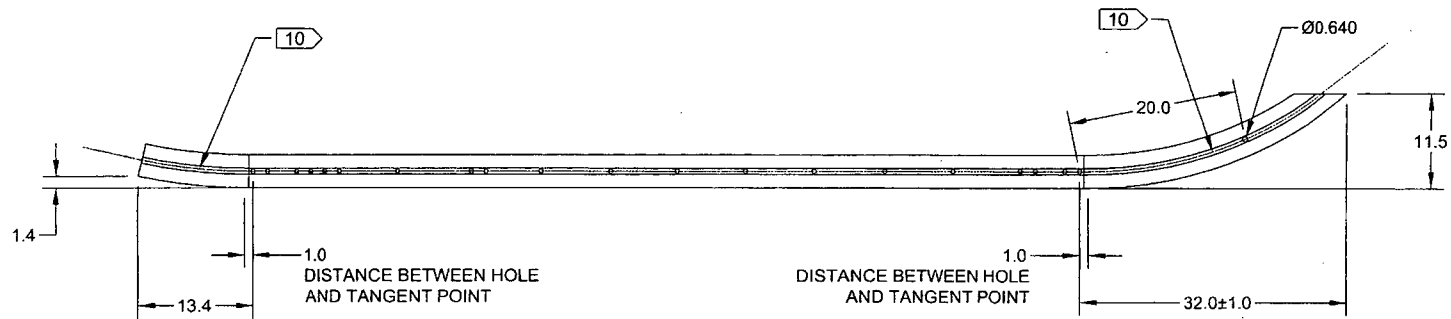
AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:  
1. CHAMFER HOLE 0.050 X 45°  
2. INSERT D2579 SPACER (20 PLACES)  
3. WELD INTO PLACE AND GRIND FLUSH  
4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

**DETAIL C** D3-2  
SCALE 5X



DESIGN	4	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	140	DRAWING NO.	REV. E
MFG. APPR.	140	D2580	SHEET 2 OF 8
APPROVED	140	TITLE	SCALE
DE APPR.	140	205 SKIDTUBE ASSEMBLY	NTS
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**DEO ATTACHED**  
**RELEASED**  
2011-08-30  
JW

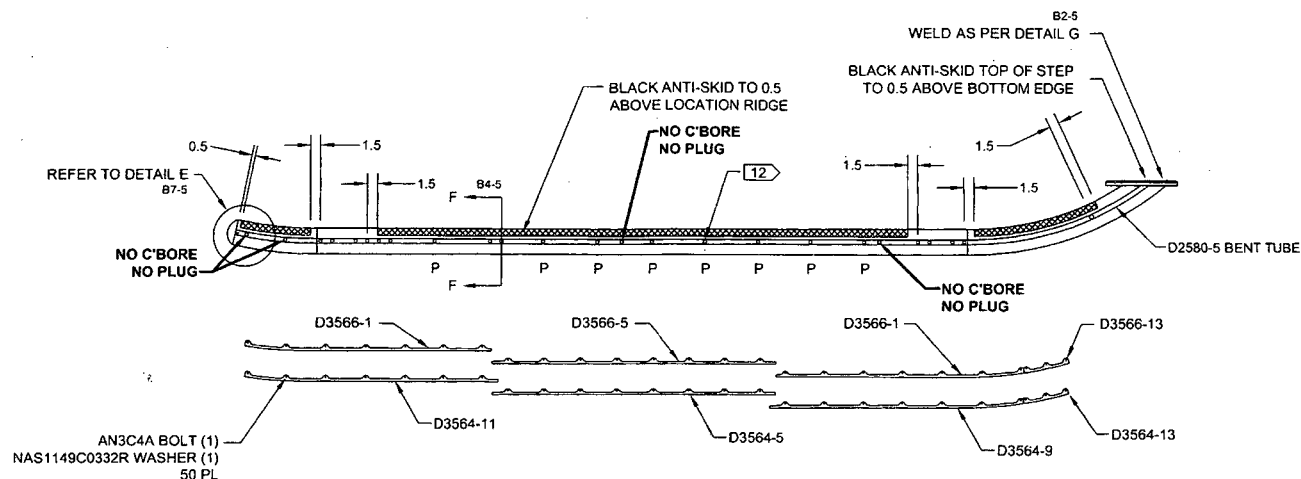


D2580-1 BENT TUBE  
(MAKE FROM D2580-101 TUBE)

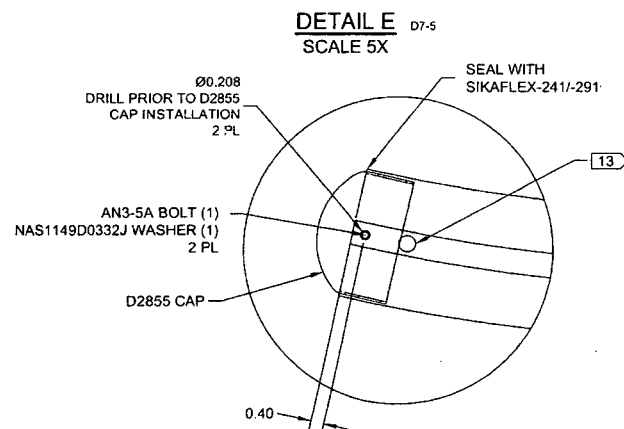
DEO ATTACHED

RELEASED  
2011-08-28

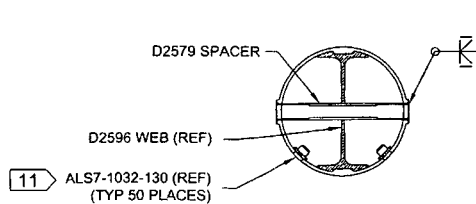
DESIGN	<i>RF</i>	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>RF</i>	DRAWING NO.	REV. E
MFG. APPR.	<i>RF</i>	D2580	SHEET 3 OF 8
APPROVED	<i>RF</i>	TITLE	SCALE
DE APPR.	<i>RF</i>	205 SKIDTUBE ASSEMBLY	NTS
DATE	11.06.21	COPYRIGHT © 1996 BY DART AEROSPACE LTD	
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**D2580-045 ASSEMBLY DETAIL**

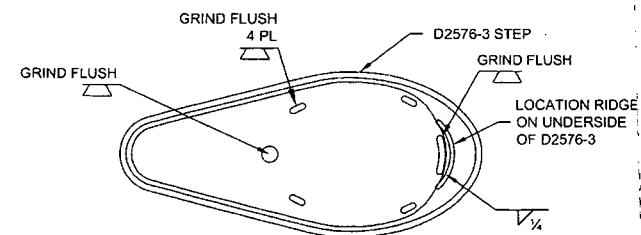


**SECTION F-F SCALE 5X**



- AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
  2. INSERT D2579 SPACER (24 PLACES)
  3. WELD INTO PLACE AND GRIND FLUSH
  4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

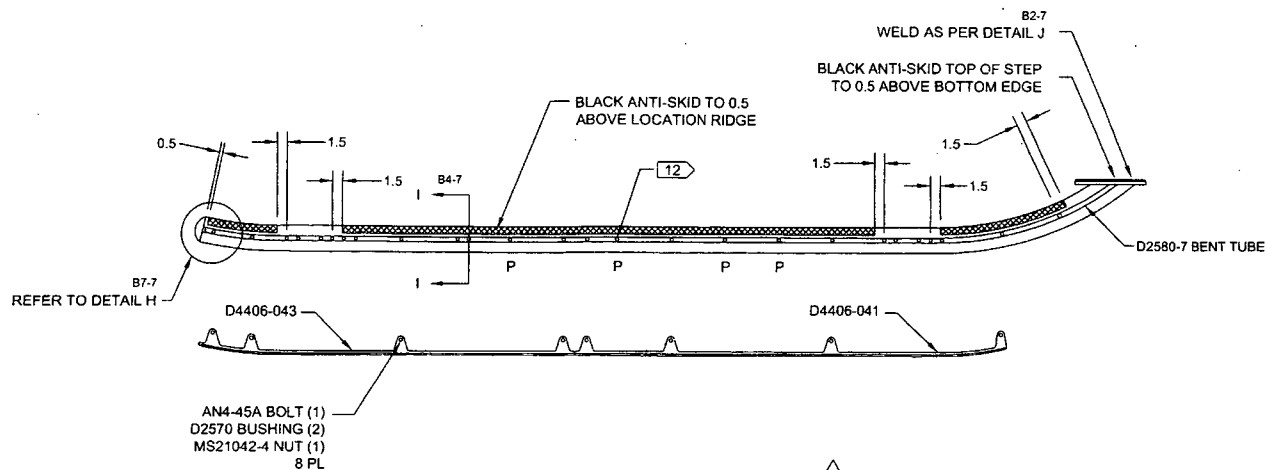
**DETAIL G SCALE 5X**



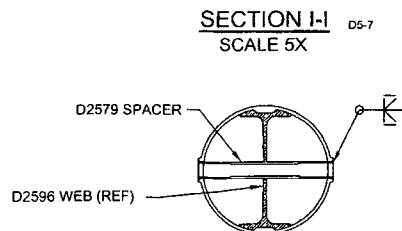
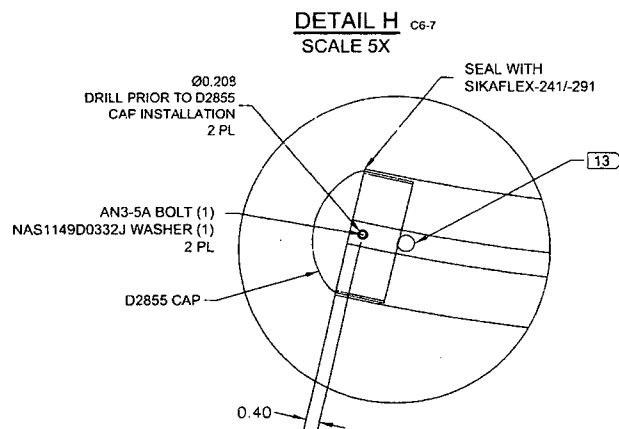
**DEO ATTACHED**  
**RELEASED**  
2011-08-28

DESIGN	4	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	10	DRAWING NO.	REV. E
MFG. APPR.	10	D2580	SHEET 4 OF 8
APPROVED	10	TITLE	SCALE
DE APPR.	10	205 SKIDTUBE ASSEMBLY	NTS
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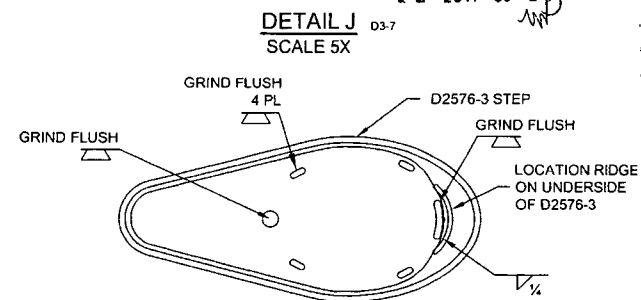




**D2580-047 ASSEMBLY DETAIL** E

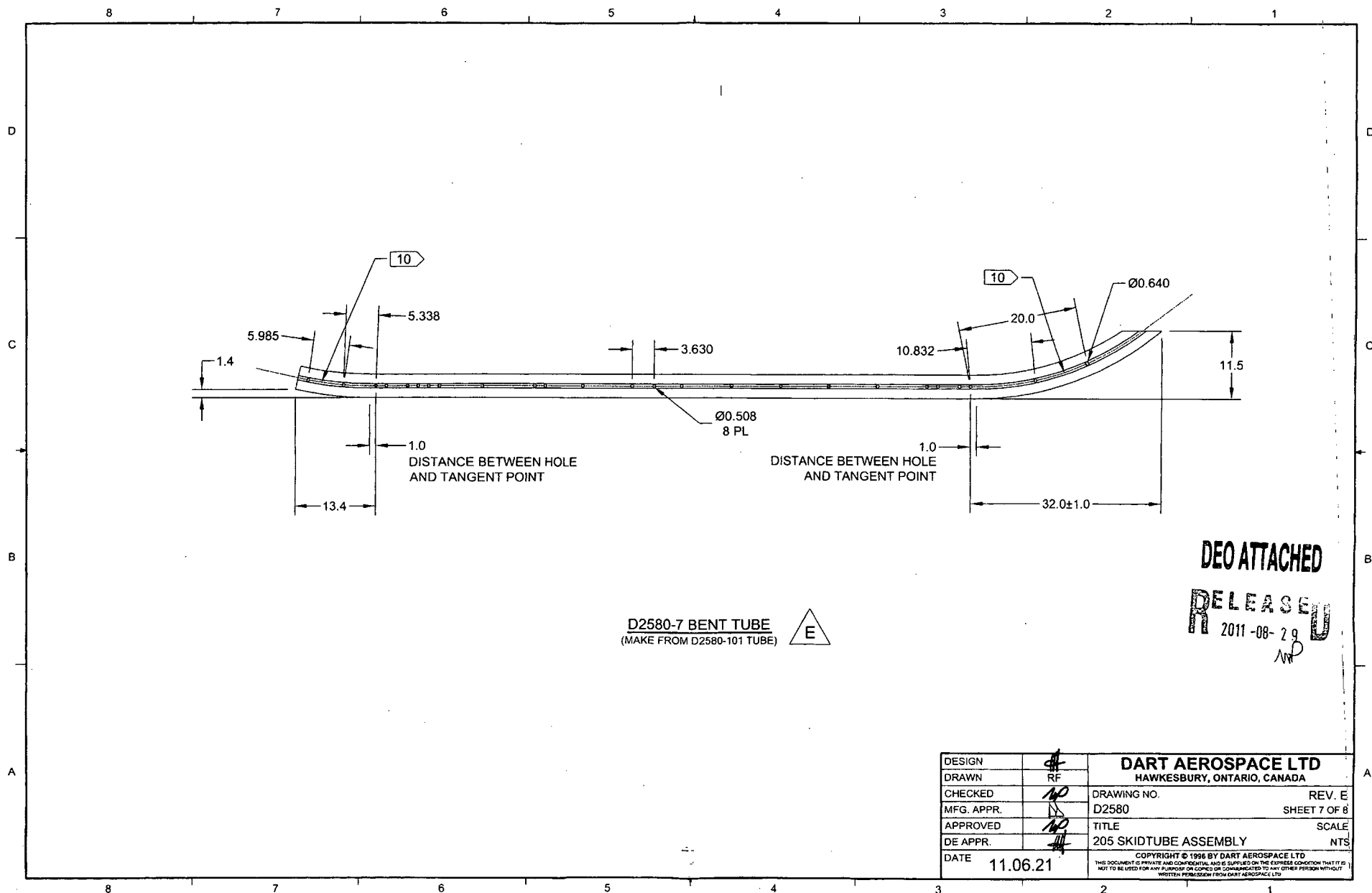


- AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
  2. INSERT D2579 SPACER (25 PLACES)
  3. WELD INTO PLACE AND GRIND FLUSH
  4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP

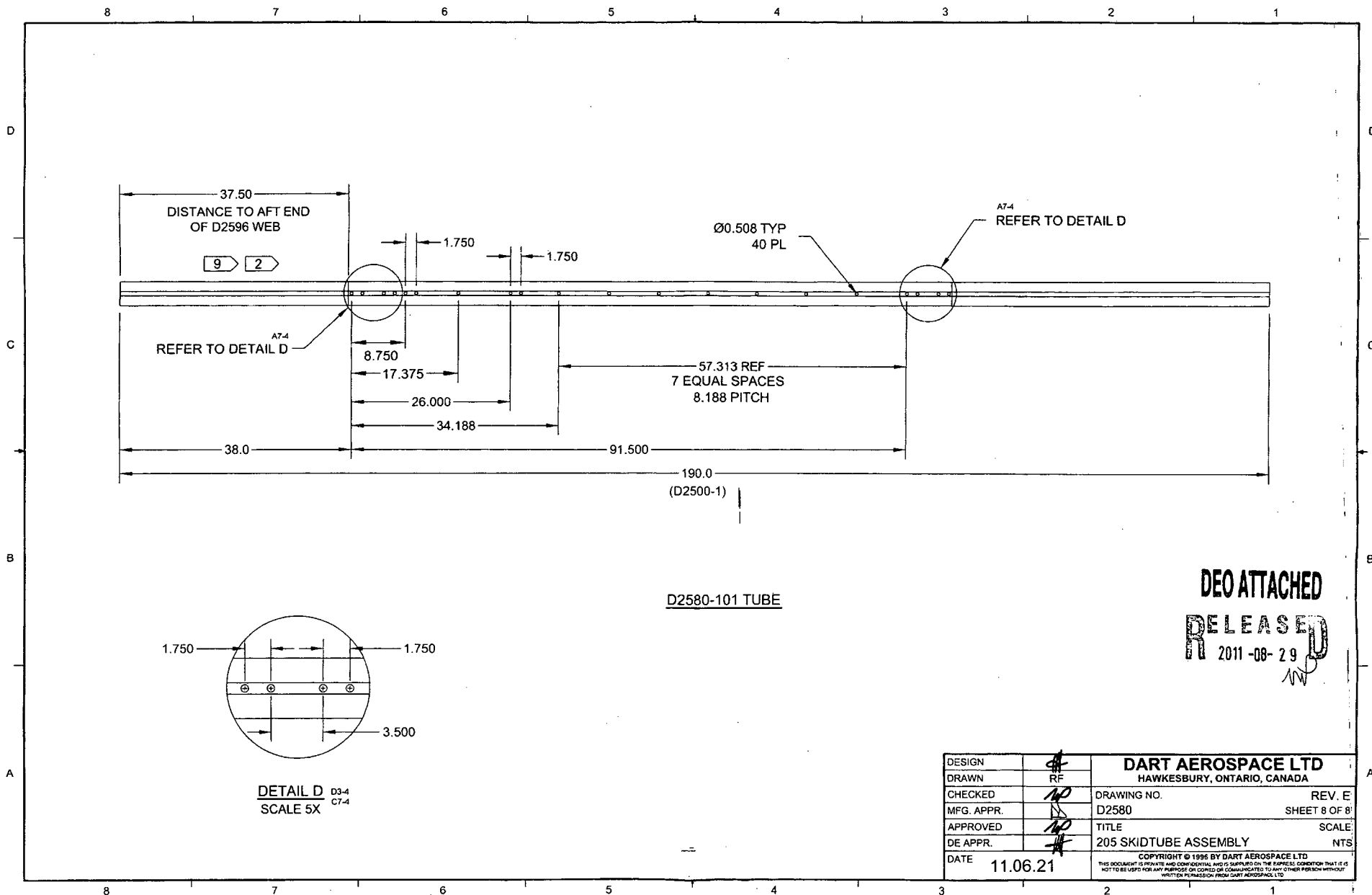


DESIGN	<b>4</b>	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<b>10</b>	DRAWING NO.	REV. E
MFG. APPR.	<b>10</b>	D2580	SHEET 6 OF 8
APPROVED	<b>10</b>	TITLE	SCALE
DE APPR.	<b>10</b>	205 SKIDTUBE ASSEMBLY	NTS
DATE	11.06.21	<small>COPYRIGHT © 1996 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE, OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD</small>	

DEO ATTACHED  
RELEASED  
2011-08-29



DEO ATTACHED  
RELEASED  
2011-08-29  
AM





DRAWING NO. D2580	TITLE 205 SKIDTUBE ASSEMBLY	REV. E	<b>DART AEROSPACE LTD ENGINEERING ORDER</b>	D.E.O. NO. D2580-E-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>UP</i>	CHECKED <i>ASS</i>	MFG. APPR. <i>ER</i>	APPROVED <i>HA</i>	DE APPR. <i>HA</i>		
DATE 11.12.13	DATE 11.12.13	DATE 11.12.13	DATE 11.12.13	DATE 11.12.13	DATE 11.12.13	

**PURPOSE:**

CHANGE ALL C'BORED WELDED CROSSBOLT SPACERS TO SWAGED SPACERS

**CHANGE:**

PARTS LIST IS AMENDED AS FOLLOWS:

**WAS**

QTY	QTY	QTY	PART NUMBER	DESCRIPTION
-041	-045	-047		
20	24	25	D2579	CROSS BOLT SPACER

**IS**

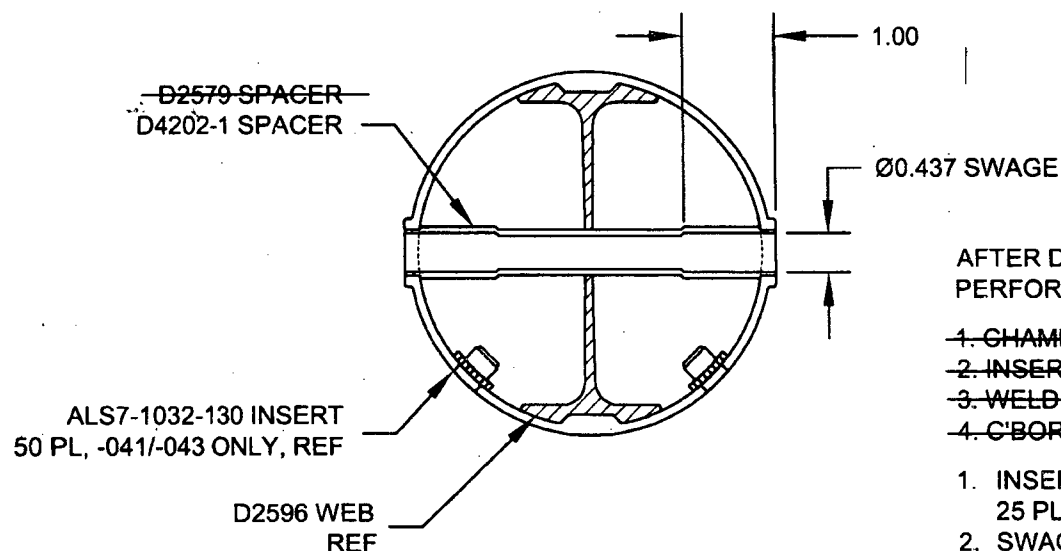
	4		* D2579	CROSS BOLT SPACER
20	20	25	D4202-1	SPACER

SECTION B-B, SECTION F-F, & SECTION I-I ARE AMENDED AS FOLLOWS  
FOR ALL HOLES THAT WERE ORIGINALLY C'BORED:

**\* FOR -045 SKIDTUBE ONLY:**

WELD 4X D2579 SPACERS PER DWG  
IN LOCATIONS MARKED "NO C'BORE".  
REF SHEET 4 OF DWG.

**RELEASED**  
2011-12-14



AFTER DRILLING AND BENDING ASSEMBLY  
PERFORM THE FOLLOWING FOR Ø0.508 HOLES ONLY:

- ~~1. CHAMFER HOLE 0.050 X 45°~~
- ~~2. INSERT D2579 SPACER (20 PLACES)~~
- ~~3. WELD INTO PLACE AND GRIND FLUSH~~
- ~~4. C'BORE D2579 SPACER TO Ø0.437 X 1.00 DEEP~~

1. INSERT D4202-1 SPACER, 20 PL (-041) OR 20 PL (-045) OR 25 PL (-047)
2. SWAGE TO Ø0.437 X 1.00 DEEP PER QSI 002
3. TRIM / GRIND FLUSH PER QSI 002

**SECTION B-B, F-F, I-I**  
NOT TO SCALE

